

Claims

1. Large package for the transport and storage of insulation elements, especially insulation rolls and insulation panels made of mineral wool, which large package is made up of modules which are arranged side by side and for stacked and each module comprises several, preferably two-to-five insulation rolls or insulation-panel packets combined by a film covering, the modules being tied by wrapping elements to form a storage and transport unit, **characterised in that** the modules (5) are protected in their entirety against water ingress by a waterproof covering (6) that is preferably permeable to water vapour.
2. Large packet according to claim 1, **characterised in that** the covering (6) completely encloses the preferably compressed insulation rolls or insulation-panel packets (1, 10) packaged therein to the module (5).
3. Large package according to claim 1 or 2, **characterised in that** each module contains two-to-five or more insulation rolls or insulation packets (1, 10), with each insulation packet containing two-to-ten or more insulation panels.
4. Large package according to one of the preceding claims, **characterised in that** the covering is composed of a film or foil.
5. Large package according to claim 4, **characterised in that** polyethylene, polyvinyl chloride, polypropylene, polyester or polyamide is used as film or foil material.
6. Large package according to one of the preceding claims, **characterised in that** the covering (6) is composed of a moisture-adaptive material whose water-vapour diffusion resistance is dependent on the relative humidity of the surrounding atmosphere.
7. Large package according to claim 6, **characterised in that** when the relative humidity of the atmosphere surrounding the vapour barrier is in the range from 30 to 50 %, the material has a water-vapour diffusion resistance (s_d value) of 2 to 5 m diffu-

sion-equivalent air-layer thickness and when the relative humidity is in the range from 60 to 80 %, it has a water-vapour diffusion resistance (s_d value) of < 1 m diffusion-equivalent air-layer thickness.

8. Large package according to claim 6 or 7, **characterised in that** the material is composed of film or foil.
9. Large package according to one of the preceding claims, **characterised in that** the material is film or foil based on polyamide such as polyamide 3, polyamide 4 or polyamide 6.
10. Large package according to one of the preceding claims, **characterised in that** to increase the stacking stability of the stack, at least some of the modules (5) are arranged crosswise, i.e. alternately upright and lying flat, with vertical and horizontal orientation of the modules.
11. Large package according to one of the preceding claims, **characterised in that** to increase the stacking stability, the modules (5) in the stack are arranged upright but offset relative to each other.
12. Large package according to one of the claims 1 to 11, **characterised in that** the insulation rolls or insulation packets are packaged in each case under a compression ratio up to 1:7 or more, in particular above 1:3.5.
13. Large package according to one of the preceding claims, **characterised in that** the film or foil wrapping of the module (5) is welded, shrunk or bonded in the overlap area.
14. Large package according to one of the claims 1 to 12, **characterised in that** the film wrapping of the module is composed of film which is self-adhesive in the over-

lap area and which welds on making contact, without additionally requiring an adhesive.

15. Large package according to one of the claims 13 or 14, **characterised in that** the film excess projects outwards, at least in parts, to form a rib-like gripping edge (8), thus making it possible to grip the module at said gripping edge.
16. Large package according to claim 15, **characterised in that** the rib-like edge (8) is provided with handling means, especially openings (9), which are preferably spaced to suit the grab width of a fork lift.
17. Large package according to one of the claims 12 to 16, **characterised in that** the film excess as measured from the glueline or weld to the edge of the film is at least 5 cm, preferably 10 cm.
18. Large package according to one of the preceding claims, **characterised in that** it has no pallet and consists of stacked modules (5,5') that have a waterproof packaging, the modules (5,5') being held together by strap retainers (12,16) or similar means.
19. Large package according to claim 18, **characterised in that** between the layers of modules, preferably in the middle of the large package, an interposing layer (14) is provided as a lifting point (15) for a fork lift.
20. Large package according to claim 19, **characterised in that** the interposing layer (14) consists of cardboard, mineral wool in the form of a panel, or plastic.
21. Module for the transport and storage of mineral-wool insulation elements, especially insulation rolls and insulation panels, in which insulation rolls and insulation-panel packets are contained in a covering, and which is designed to be used especially for a

large package, **characterised in that** the module is protected in its entirety against water ingress by a waterproof covering that is preferably permeable to water vapour.

22. Module according to claim 17, **characterised in that** the covering is configured according to the preceding features.
23. Use of the covering according to one of the preceding claims, **characterised in that**, as a means of disposal, it is used as a vapour barrier, in particular for a high-pitched roof.

AMENDED CLAIMS

[received by the International Bureau on 19 August 2004 (19.08.04);
original claims 1, 21 amended, other claims unchanged]

1. Large package for the transport and storage of insulation elements, especially insulation rolls and insulation panels made of mineral wool, which large package is made up of modules which are arranged side by side and for stacked and each module comprises several, preferably two-to-five insulation rolls or insulation-panel packets combined by a film covering, the modules being tied by wrapping elements to form a storage and transport unit, **characterised in that** the modules (5) are protected in their entirety against water ingress by a waterproof covering (6) that is completely encasing the module and preferably permeable to water vapour.
2. Large packet according to claim 1, **characterised in that** the covering (6) completely encloses the preferably compressed insulation rolls or insulation-panel packets (1, 10) packaged therein to the module (5).
3. Large package according to claim 1 or 2, **characterised in that** each module contains two-to-five or more insulation rolls or insulation packets (1, 10), with each insulation packet containing two-to-ten or more insulation panels.
4. Large package according to one of the preceding claims, **characterised in that** the covering is composed of a film or foil.
5. Large package according to claim 4, **characterised in that** polyethylene, polyvinyl chloride, polypropylene, polyester or polyamide is used as film or foil material.
6. Large package according to one of the preceding claims, **characterised in that** the covering (6) is composed of a moisture-adaptive material whose water-vapour diffusion resistance is dependent on the relative humidity of the surrounding atmosphere.

7. Large package according to claim 6, **characterised in that** when the relative humidity of the atmosphere surrounding the vapour barrier is in the range from 30 to 50 %, the material has a water-vapour diffusion resistance (s_d value) of 2 to 5 m diffusion-equivalent air-layer thickness and when the relative humidity is in the range from 60 to 80 %, it has a water-vapour diffusion resistance (s_d value) of < 1 m diffusion-equivalent air-layer thickness.
8. Large package according to claim 6 or 7, **characterised in that** the material is composed of film or foil.
9. Large package according to one of the preceding claims, **characterised in that** the material is film or foil based on polyamide such as polyamide 3, polyamide 4 or polyamide 6.
10. Large package according to one of the preceding claims, **characterised in that** to increase the stacking stability of the stack, at least some of the modules (5) are arranged crosswise, i.e. alternately upright and lying flat, with vertical and horizontal orientation of the modules.
11. Large package according to one of the preceding claims, **characterised in that** to increase the stacking stability, the modules (5) in the stack are arranged upright but offset relative to each other.
12. Large package according to one of the claims 1 to 11, **characterised in that** the insulation rolls or insulation packets are packaged in each case under a compression ratio up to 1:7 or more, in particular above 1:3.5.
13. Large package according to one of the preceding claims, **characterised in that** the film or foil wrapping of the module (5) is welded, shrunk or bonded in the overlap area.
14. Large package according to one of the claims 1 to 12, **characterised in that** the film

wrapping of the module is composed of film which is self-adhesive in the overlap area and which welds on making contact, without additionally requiring an adhesive.

15. Large package according to one of the claims 13 or 14, **characterised in that** the film excess projects outwards, at least in parts, to form a rib-like gripping edge (8), thus making it possible to grip the module at said gripping edge.
16. Large package according to claim 15, **characterised in that** the rib-like edge (8) is provided with handling means, especially openings (9), which are preferably spaced to suit the grab width of a fork lift.
17. Large package according to one of the claims 12 to 16, **characterised in that** the film excess as measured from the glueline or weld to the edge of the film is at least 5 cm, preferably 10 cm.
18. Large package according to one of the preceding claims, **characterised in that** it has no pallet and consists of stacked modules (5,5') that have a waterproof packaging, the modules (5,5') being held together by strap retainers (12,16) or similar means.
19. Large package according to claim 18, **characterised in that** between the layers of modules, preferably in the middle of the large package, an interposing layer (14) is provided as a lifting point (15) for a fork lift.
20. Large package according to claim 19, **characterised in that** the interposing layer (14) consists of cardboard, mineral wool in the form of a panel, or plastic.
21. Module for the transport and storage of mineral-wool insulation elements, especially insulation rolls and insulation panels, in which insulation rolls and insulation-panel packets are contained in a covering, and which is designed to be used especially for a large package, **characterised in that** the module is protected in its entirety against water ingress by a waterproof covering that is completely encasing the module and preferably permeable to water vapour.

22. Module according to claim 17, **characterised in that** the covering is configured according to the preceding features.
23. Use of the covering according to one of the preceding claims, **characterised in that**, as a means of disposal, it is used as a vapour barrier, in particular for a high-pitched roof.